

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 9588

Roll No.

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B. Tech.

(Semester-I) Theory Examination, 2012-13

INTRODUCTION TO BIO-TECHNOLOGY

Time : 3 Hours]

[Total Marks : 100

Note : Attempt questions from all Sections as per instructions.

Section-A

1. Attempt *all* parts of this question. 10×2=20
- (a) Discuss how biotechnology is useful to agriculture.
 - (b) What are the issues related to biosafety?
 - (c) How carbohydrates are classified ? Give examples for each class.
 - (d) What are the biomolecules ? Give the function of each of them.
 - (e) Give few characteristics of microorganisms.

- (f) Write the importance and applications of light microscope.
- (g) Name few inventions which form the basis for bioinformatics.
- (h) What are the uses of biological databases ?
- (i) What do you know about SNP ?
- (j) Discuss about transcriptome analysis.

Section-B

2. Attempt any *three* parts of this question. 10×3=30

- (a) Explain the following :
 - (i) Purification of an enzyme
 - (ii) Classification of enzymes.
- (b) The application of biotechnology is multidisciplinary. Prove this statement.
- (c) Explain with examples how microbes are useful in the fermentation of various products.
- (d) What do you mean by a database ? Explain the role of database in bioinformatics.
- (e) Write notes on protein structure prediction techniques.

Section-C

Attempt *all* questions of this Section. $10 \times 5 = 50$

3. Attempt any two parts : $5 \times 2 = 10$

- (a) How chromatography is useful in separation of final product after fermentation ? Explain with example.
- (b) Give the applications of enzymes in food industry with examples.
- (c) Write short notes on Genetically modified organisms.

4. Attempt any one part : $10 \times 1 = 10$

- (a) Protein structures are of four types. What are they ? Illustrate in detail.
- (b) Explain the different methods of immobilization of enzymes, discussing the advantages and disadvantages.

5. Attempt any one part : $10 \times 1 = 10$

- (a) Give the cell wall structure of Gram positive and Gram negative bacteria and explain the principle of Gram Staining.
- (b) Illustrate how microbes are classified ?

6. Attempt any one part : 10×1=10
- (a) Illustrate the development and completion of human genome project.
 - (b) Give the importance and the tools associated for the following techniques :
 - (i) Comparative genome analyses
 - (ii) Gene expression analysis.
7. Attempt any two parts : 5×2=10
- (a) Software packages play an important role in Bioinformatic. How ?
 - (b) Give the chronological development of Bioinformatics.
 - (c) Write notes on parametric sequence alignment.